

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application)	
No. 10/021,874)	For: SECURE GENERATION OF
)	TEMPORARY MOBILE
)	STATION IDENTIFIERS
Quick et al.)	
)	
Examiner: William S. Powers)	
)	
Filed: December 17, 2001)	Group No. 2134

APPEAL BRIEF

Via Electronic Filing on March 21, 2007

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

A Final Office Action dated April 24, 2006 rejected all pending claims (claims 1-4, 6-14, 16-32 and 34-39) in the present application. A timely Notice of Appeal was submitted on September 28, 2006. Appellants' Appeal Brief is being filed herewith.

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1. REAL PARTY IN INTEREST

The real party in interest is the assignee, QUALCOMM, Inc.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals and/or interferences.

3. STATUS OF CLAIMS

Claims 1-4, 6-14, 16-32 and 34-39 are pending in the present application. Claims 5, 15 and 33 have been canceled.

Claims 1, 3, 6-9, 11, 13, 16-19, 21-27, 29, 31, 34-35 and 37-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan (hereinafter, “Wan”) in view of U.S. Patent No. 5,375,251 to Pfundstein (hereinafter, “Pfundstein”).

Claims 2, 12 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of U.S. Patent No. 5,123,111 to Delory et al. (hereinafter, “Delory”).

Claims 4, 14 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of “Handbook of Applied Cryptography” by Menezes et al. (hereinafter, “Menezes”).

Claims 10, 20 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of “Data Structures and Other Objects using C++” by Main et al. (hereinafter, “Main”).

Appellants appeal the rejections of claims 1-4, 6-14, 16-32 and 34-39.

4. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final rejection.

5. SUMMARY OF CLAIMED SUBJECT MATTER

As stated in the background section of Appellants’ specification, mobile stations in wireless communication systems, such as Global System for Mobile Communication (“GSM”), use an International Mobile Subscriber Identifier (“IMSI”) to uniquely identify each user on the

network. However, an attacker or eavesdropper may use a mobile station's IMSI to potentially track or eavesdrop on a mobile station user. GSM and Code Division Multiple Access ("CDMA") Interim Standard 2000 ("IS-2000") use Temporary Mobile Station Identifier ("TMSI") in lieu of IMSI when operating in a service area.

TMSI provides security by substituting a randomly selected identification number instead of the mobile station's actual IMSI. The TMSI is selected from a large pool of possible identifiers. For example, in GSM and CDMA IS-2000 systems the TMSI value is a thirty two (32) bit number. Thus, for GSM and CDMA, the number of possible TMSI that can be assigned is 2^{32} or 4,294,967,296. The security of TMSI is derived from its large space of possible assignments that an eavesdropper must search to find a particular user. However, the total number of assignments is currently too large for current systems to manage as an assignment in real time. Also, managing such a large table in memory requires a large amount of memory, which adds to manufacturing costs.

Accordingly, new systems and methods are needed for a wireless system to be able to practically maintain and generate secure temporary mobile station identifiers. In particular, there is a need for systems and methods for efficiently maintaining and securely generating TMSI assignments.

As required by 37 C.F.R. § 41.37(c)(1)(v), a summary of claimed subject matter immediately follows. The references to the specification refer only to embodiments of the invention. The invention is defined by the claims. Accordingly, these references to the specification are not meant to limit the scope of the claims at issue in any way but are only provided because they are mandated by 37 C.F.R. § 41.37(c)(1)(v). All references are to Appellants' specification.

1. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:

initializing an assignment table; (pg. 7, lines 8-9; pg. 11, lines 8-13; Fig. 2, element 204; Fig. 3, element 304)

maintaining a counter value; (pg. 8, lines 1-6; pg. 11, lines 15-20; Fig. 2, element 208; Fig. 3, element 308)

hashing said counter value to obtain an assignment table index; (pg. 8, lines 7-13; pg. 11, line 21 – pg. 12, line 2; Fig. 2, element 210; Fig. 3, element 310)

searching said assignment table for an available entry; (pg. 8, lines 14-22; pg. 12, lines 3-11; Fig. 2, element 212; Fig. 3, element 312)

encrypting said counter value to obtain said temporary identifier. (pg. 9, lines 1-8; Fig. 2, element 214)

11. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:

initializing an assignment table; (pg. 7, lines 8-9; pg. 11, lines 8-13; Fig. 2, element 204; Fig. 3, element 304)

maintaining a counter value; (pg. 8, lines 1-6; pg. 11, lines 15-20; Fig. 2, element 208; Fig. 3, element 308)

hashing said counter value to obtain an assignment table index; (pg. 8, lines 7-13; pg. 11, line 21 – pg. 12, line 2; Fig. 2, element 210; Fig. 3, element 310)

searching said assignment table for an available entry; (pg. 8, lines 14-22; pg. 12, lines 3-11; Fig. 2, element 212; Fig. 3, element 312)

encrypting said counter value and said assignment table index to obtain said temporary identifier. (pg. 9, lines 1-8; pg. 12, lines 12-18; Fig. 2, element 214; Fig. 3, element 314)

21. A wireless communication system comprising:

means for mobile switching; (pg. 6, lines 15-18; Fig. 1, element 130)

means for registering a visitor location; (pg. 6, lines 19-21; pg. 7, lines 8-9; Fig. 1, element 132)

means for storing and assigning a plurality of subscriber identifiers; (pg. 7, lines 1-2 and lines 17-19; Fig. 1, elements 132 and 140)

means for maintaining a counter value; (pg. 7, lines 2-4; pg. 8, lines 1-6; pg. 11, lines 15-20; Fig. 2, element 208; Fig. 1, elements 132 and 142)

means for encrypting and generating a temporary identifier. (pg. 7, lines 3-4; pg. 9, lines 1-8; pg. 12, lines 12-18; Fig. 1, elements 132 and 144)

29. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:

initializing an assignment table; (pg. 7, lines 8-9; pg. 11, lines 8-13; Fig. 2, element 204; Fig. 3, element 304)

maintaining a counter value; (pg. 8, lines 1-6; pg. 11, lines 15-20; Fig. 2, element 208; Fig. 3, element 308)

hashing said counter value to obtain an assignment table index; (pg. 8, lines 7-13; pg. 11, line 21 – pg. 12, line 2; Fig. 2, element 210; Fig. 3, element 310)

searching said assignment table for an available entry; (pg. 8, lines 14-22; pg. 12, lines 3-11; Fig. 2, element 212; Fig. 3, element 312)

encrypting said counter value and said assignment table index to obtain said temporary identifier; (pg. 9, lines 1-8; pg. 12, lines 12-18)

storing a subscriber identifier and said counter value in said available entry. (pg. 9, lines 13-16; pg. 13, lines 1-2)

37. A computer readable medium including a computer program, said computer program implementing a method for generating a temporary identifier in a service area of a wireless communication system, said computer program comprising:

a first code segment for initializing an assignment table; (pg. 7, lines 8-9; pg. 11, lines 8-13)

a second code segment for maintaining a counter value; (pg. 8, lines 1-6; pg. 11, lines 15-20)

a third code segment for obtaining an assignment table index; (pg. 8, lines 7-13; pg. 11, line 21 – pg. 12, line 2)

a fourth code segment for searching said assignment table for an available entry; (pg. 8, lines 14-22; pg. 12, lines 3-11)

a fifth code segment for encrypting said counter value to obtain said temporary identifier. (pg. 9, lines 1-8)

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following issues are presented for review:

Whether claims 1, 3, 6-9, 11, 13, 16-19, 21-27, 29, 31, 34-35 and 37-39 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein.

Whether claims 2, 12 and 30 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Delory.

Whether claims 4, 14 and 32 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Menezes.

Whether claims 10, 20 and 36 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Main.

7. ARGUMENT

A. Claims 1, 3, 6-9, 11, 13, 16-19, 21-27, 29, 31, 34-35 and 37-39 Rejected under 35 U.S.C. § 103(a)

Claims 1, 3, 6-9, 11, 13, 16-19, 21-27, 29, 31, 34-35 and 37-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein. This rejection is respectfully traversed

The M.P.E.P. states that

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

M.P.E.P. § 2142.

Appellants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in these claims.

Claim 1 recites “hashing said counter value to obtain an assignment table index.” Wan, alone or in combination with Pfundstein, does not teach, suggest or disclose this claim element. Instead, Wan states:

In one embodiment of the present invention, in a step 1014, instructions of the SPCH registration module 714 as executed by the software instruction processing unit 704 generate a 6-bit short page identity (SPI) value. The SPI may represent 6 bits from the TMSI value, or 6 bits from the IMSI value. Alternatively, the 6 bits may represent some transformation, such as a hash function combined with a modulo operation, performed on the TMSI or IMSI value.

Wan, col. 17, lines 23-30.

The Office Action refers to the above cited passage of Wan to support the assertion that Wan teaches “hashing said counter value to obtain an assignment table index.” See Office Action, page 4. Wan states that “the 6 bits [SPI value] may represent . . . a hash function . . . performed on the TMSI or IMSI value.” Wan, col. 17, lines 28-30. As such, Wan clearly teaches that the “hash function . . . [is] performed on the TMSI or IMSI value.” Id. Performing a hash function on the TMSI or IMSI value does not teach, suggest or disclose “hashing said counter value” because the TMSI or IMSI does not teach, suggest or disclose “said counter value.” In addition, Wan does not teach, suggest or disclose that performing a hash function on the TMSI or IMSI value is to “obtain an assignment table index” as claimed by Appellants.

Further, the only counter value mentioned in the portions of Wan cited by the Office Action is the following:

In still another embodiment, the 6 bits of the SPI may be selected by instructions of the SPCH registration module 714 completely independent of the TMSI and IMSI values for a mobile station 106, such as by incrementing a 6-bit counter and associating the resulting value with a registering mobile station 106 (setting the counter to 0 when incrementing the binary counter value 111111).

Wan, col. Lines 30-37.

Incrementing a 6-bit counter does not teach, suggest or disclose “hashing said counter value.” In fact, Wan simply states “setting the counter to 0 when incrementing the binary counter value 111111.” Setting the counter to 0 does not teach, suggest or disclose “hashing said counter value.”

In addition, this portion of Wan does not teach, suggest or disclose “hashing said counter value to obtain an assignment table index.” Wan merely states “incrementing a 6-bit counter” so that “the 6 bits of the SPI may be selected by instructions of the SPCH registration module.” Incrementing a counter to select the SPI does not teach, suggest or disclose “hashing said counter value to obtain an assignment table index” as claimed by Appellants.

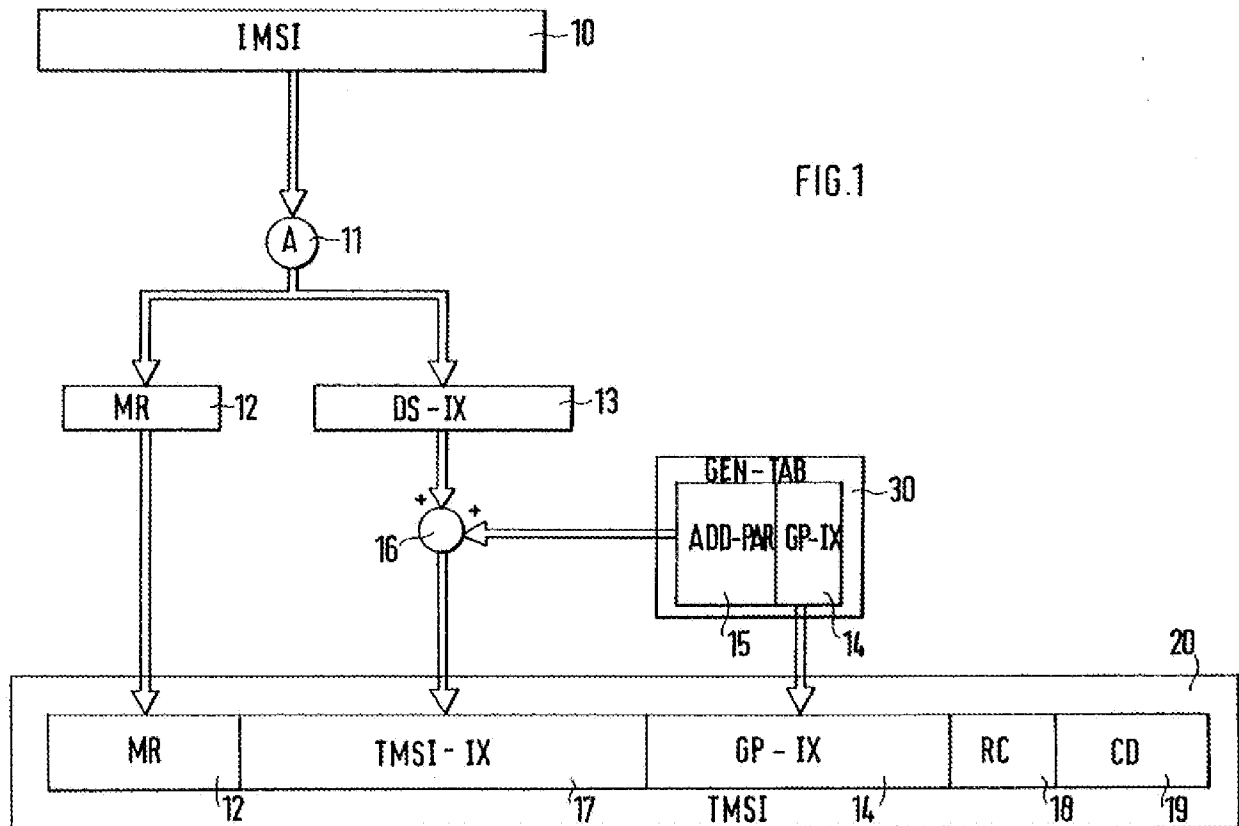
In addition, Wan does not teach, suggest or disclose “searching said assignment table for an available entry” or “encrypting said counter value to obtain said temporary identifier.” This is evidenced by page 4 of the Office Action which states that the method was not taught in Wan. (“Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.” Office Action, page 4.)

The addition of Pfundstein does nothing to overcome the deficiencies of Wan discussed above. Pfundstein also does not teach, suggest or disclose “hashing said counter value to obtain an assignment table index.” In fact, there is no teaching, suggestion or disclosure of a counter value in any portion of Pfundstein. Similarly, there is no portion of Pfundstein that teaches, suggests, discloses or mentions hashing. As such, Pfundstein does not teach, suggest or disclose “hashing said counter value to obtain an assignment table index” as claimed by Appellants.

Further, the index mentioned in Pfundstein is the generation parameter index GP-IX 14 used for selecting an addition parameter ADD-PAR 16 that is used to determine one part out of many parts of the TMSI 20 (col. 3, line 62 – col. 4, line 2 of Pfundstein). The generation parameter index GP-IX of Pfundstein is not, and cannot be “an assignment table index” as claimed by Appellants. The assignment table index, as claimed by Appellants, is for indexing individual TMSIs, not for generating one part of many of the TMSI as taught in Pfundstein.

In addition, Figure 1 of Pfundstein (shown below) illustrates the “schematic representation of the TMSI determination.” Pfundstein, col. 3, lines 32-33. As is shown in Figure 1 from Pfundstein, the TMSI is made up of several different parts. For example, the memory area index signal (MR 12) is the first part. *Id.* at col. 3, lines 40-55. The temporary

subscriber index signal (TMSI-IX 17) is the second part. *Id.* at col. 4, lines 1-25. The generation parameter index signal (GP-IX) is the third part. *Id.* at col. 4, lines 1-25. The recovery code RC 18 is the fourth part. *Id.* at col. 4, lines 26-35. The configuration discriminator CD 19 is the fifth part. *Id.* at col. 4, lines 26-35. Figure 1 schematically shows how these different parts are obtained.



None of these portions of the TMSI in Pfundstein teach, suggest or disclose “hashing said counter value to obtain an assignment table index”, “searching said assignment table for an available entry” and “encrypting said counter value to obtain said temporary identifier.” In order to more fully explain this point, the determination of the Pfundstein TMSI will be briefly described.

The memory area index signal (MR 12) is assigned to a subscriber. “Via an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned a memory area MR 12.” Id. at col. 3, lines 43-45.

“The TMSI-IX 17 is obtained by adding the new pseudorandom addition parameter ADD-PAR 16 and the DS-IX 13.” Id. at col. 4, lines 1-25. Regarding the DS-IX 13, Pfundstein states “[v]ia an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned . . . a data record with a data-record index DS-IX 13.” Id. at col. 3, lines 43-45. “With the new value for GP-IX 14, the new pseudorandom addition parameter ADD-PAR 16 is selected from the generation table GEN-TAB 30.” Id. col. 4, lines 7-10.

The GP-IX 14 is “a generation parameter index signal”. Id. at col. 2, lines 51-52. The GP-IX 14 is used to “address a generation parameter table (GEN-TAB)” to look up the addition parameter signal (ADD-PAR). Id. at col. 2, lines 59-61. (The ADD-PAR 16 is added to the DS-IX 13 to obtain the TMSI-IX 17, as shown in Figure 1, which is the second part of the TMSI 20.)

The last two parts of the TMSI 20 are other parameters. “Further constituents of the structure of the TMSI 20 are a recovery code RC 18 and configuration discriminator [CD] 19. Both parameters permit further degrees of freedom in the unambiguous assignment of data records to subscriber numbers IMSI 10.” Id. at col. 4, lines 26-30.

As shown by the above, Pfundstein does not teach, suggest or disclose “hashing said counter value to obtain an assignment table index.” Furthermore, Pfundstein does not teach, suggest or disclose “encrypting said counter value to obtain said temporary identifier.” Finally, Pfundstein does not teach, suggest or disclose “searching said assignment table for an available entry.” The assignment table index as claimed by Appellants is for indexing individual TMSIs, not for generating one part out of many of the TMSI as taught in Pfundstein.

In view of the foregoing, Appellants respectfully submit that claim 1 is patentably distinct from Wan and Pfundstein, alone or in combination. Accordingly, Appellants respectfully request that the rejection of claim 1 be withdrawn.

Claims 3 and 6-9 depend either directly or indirectly from claim 1. Accordingly, Appellants respectfully request that the rejection of claims 3 and 6-9 be withdrawn for at least the same reasons as those presented above in connection with claim 1 because Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose every element of claim 1.

Claim 11 recites “hashing said counter value to obtain an assignment table index” and “searching said assignment table for an available entry.” For the same reasons set forth above in connection with claim 1, Appellants submit that Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose these claim elements.

Claim 11 also recites “encrypting said counter value and said assignment table index to obtain said temporary identifier.” Wan does not teach, suggest or disclose this claim element as evidenced by page 4 of the Office Action which states that the method was not taught in Wan. (“Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.” Office Action, page 4.)

The addition of Pfundstein does nothing to overcome the deficiencies of Wan discussed above. Pfundstein also does not teach, suggest or disclose “encrypting said counter value and said assignment table index to obtain said temporary identifier.” The index mentioned in Pfundstein is the generation parameter index GP-IX 14 used for generating an addition parameter ADD-PAR 16 that is used to determine one part out of many parts of the TMSI 20 (col. 3, line 62 – col. 4, line 2 of Pfundstein). The generation parameter index GP-IX of Pfundstein is not, and cannot be “an assignment table index” as claimed by Appellants. The assignment table index, as claimed by Appellants, is for indexing individual TMSIs, not for generating one part of many of the TMSI as taught in Pfundstein.

Figure 1 of Pfundstein (as provided above) illustrates the “schematic representation of the TMSI determination.” Pfundstein, col. 3, lines 32-33. As is shown in Figure 1 from Pfundstein, the TMSI is made up of several different parts. For example, the memory area index signal (MR 12) is the first part. *Id.* at col. 3, lines 40-55. The temporary subscriber index signal (TMSI-IX 17) is the second part. *Id.* at col. 4, lines 1-25. The generation parameter index signal (GP-IX) is the third part. *Id.* at col. 4, lines 1-25. The recovery code RC 18 is the fourth part. *Id.* at col. 4, lines 26-35. The configuration discriminator CD 19 is the fifth part. *Id.* at col. 4, lines 26-35. Figure 1 schematically shows how these different parts are obtained.

None of these portions of the TMSI in Pfundstein teach, suggest or disclose “encrypting said counter value and said assignment table index to obtain said temporary identifier.” In order to more fully explain this point, the determination of the Pfundstein TMSI will be briefly described.

The memory area index signal (MR 12) is assigned to a subscriber. “Via an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned a memory area MR 12.” Id. at col. 3, lines 43-45.

“The TMSI-IX 17 is obtained by adding the new pseudorandom addition parameter ADD-PAR 16 and the DS-IX 13.” Id. at col. 4, lines 1-25. Regarding the DS-IX 13, Pfundstein states “[v]ia an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned . . . a data record with a data-record index DS-IX 13.” Id. at col. 3, lines 43-45. “With the new value for GP-IX 14, the new pseudorandom addition parameter ADD-PAR 16 is selected from the generation table GEN-TAB 30.” Id. col. 4, lines 7-10.

The GP-IX 14 is “a generation parameter index signal”. Id. at col. 2, lines 51-52. The GP-IX 14 is used to “address a generation parameter table (GEN-TAB)” to look up the addition parameter signal (ADD-PAR). Id. at col. 2, lines 59-61. (The ADD-PAR 16 is added to the DS-IX 13 to obtain the TMSI-IX 17, as shown in Figure 1, which is the second part of the TMSI 20.)

The last two parts of the TMSI 20 are other parameters. “Further constituents of the structure of the TMSI 20 are a recovery code RC 18 and configuration discriminator [CD] 19. Both parameters permit further degrees of freedom in the unambiguous assignment of data records to subscriber numbers IMSI 10.” Id. at col. 4, lines 26-30.

As shown by the above, Pfundstein does not teach, suggest or disclose “encrypting said counter value and said assignment table index to obtain said temporary identifier.” The assignment table index as claimed by Appellants is for indexing individual TMSIs, not for generating one part out of many of the TMSI as taught in Pfundstein.

In view of the foregoing, Appellants respectfully submit that claim 11 is patentably distinct from Wan and Pfundstein, alone or in combination. Accordingly, Appellants respectfully request that the rejection of claim 11 be withdrawn.

Claims 13 and 16-19 depend either directly or indirectly from claim 11. Accordingly, Appellants respectfully request that the rejection of claims 13 and 16-19 be withdrawn for at least the same reasons as those presented above in connection with claim 11 because Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose every element of claim 11.

Claim 21 recites “means for encrypting and generating a temporary identifier.” Wan does not teach, suggest or disclose this claim element as evidenced by page 4 of the Office

Action which states that the method was not taught in Wan. (“Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.” Office Action, page 4.)

The addition of Pfundstein does nothing to overcome the deficiencies of Wan discussed above. Pfundstein also does not teach, suggest or disclose “means for encrypting and generating a temporary identifier.” Figure 1 of Pfundstein (as provided above) illustrates the “schematic representation of the TMSI determination.” Pfundstein, col. 3, lines 32-33. As is shown in Figure 1 from Pfundstein, the TMSI is made up of several different parts. For example, the memory area index signal (MR 12) is the first part. Id. at col. 3, lines 40-55. The temporary subscriber index signal (TMSI-IX 17) is the second part. Id. at col. 4, lines 1-25. The generation parameter index signal (GP-IX) is the third part. Id. at col. 4, lines 1-25. The recovery code RC 18 is the fourth part. Id. at col. 4, lines 26-35. The configuration discriminator CD 19 is the fifth part. Id. at col. 4, lines 26-35. Figure 1 schematically shows how these different parts are obtained.

None of these portions of the TMSI in Pfundstein teach, suggest or disclose “means for encrypting and generating a temporary identifier.” In order to more fully explain this point, the determination of the Pfundstein TMSI will be briefly described.

The memory area index signal (MR 12) is assigned to a subscriber. “Via an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned a memory area MR 12.” Id. at col. 3, lines 43-45.

“The TMSI-IX 17 is obtained by adding the new pseudorandom addition parameter ADD-PAR 16 and the DS-IX 13.” Id. at col. 4, lines 1-25. Regarding the DS-IX 13, Pfundstein states “[v]ia an algorithm 11 in the VLR, the subscriber with an IMSI 10 is assigned . . . a data record with a data-record index DS-IX 13.” Id. at col. 3, lines 43-45. “With the new value for GP-IX 14, the new pseudorandom addition parameter ADD-PAR 16 is selected from the generation table GEN-TAB 30.” Id. col. 4, lines 7-10.

The GP-IX 14 is “a generation parameter index signal”. Id. at col. 2, lines 51-52. The GP-IX 14 is used to “address a generation parameter table (GEN-TAB)” to look up the addition parameter signal (ADD-PAR). Id. at col. 2, lines 59-61. (The ADD-PAR 16 is added to the DS-IX 13 to obtain the TMSI-IX 17, as shown in Figure 1, which is the second part of the TMSI 20.)

The last two parts of the TMSI 20 are other parameters. “Further constituents of the structure of the TMSI 20 are a recovery code RC 18 and configuration discriminator [CD] 19. Both parameters permit further degrees of freedom in the unambiguous assignment of data records to subscriber numbers IMSI 10.” Id. at col. 4, lines 26-30.

As shown by the above, Pfundstein does not teach, suggest or disclose “means for encrypting and generating a temporary identifier.” There is no mention by Pfundstein of “encrypting.”

In view of the foregoing, Appellants respectfully submit that claim 21 is patentably distinct from Wan and Pfundstein, alone or in combination. Accordingly, Appellants respectfully request that the rejection of claim 21 be withdrawn.

Claims 22-27 depend either directly or indirectly from claim 21. Accordingly, Appellants respectfully request that the rejection of claims 22-27 be withdrawn for at least the same reasons as those presented above in connection with claim 21 because Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose every element of claim 21.

Claim 29 recites “hashing said counter value to obtain an assignment table index” and “searching said assignment table for an available entry.” For the same reasons set forth above in connection with claim 1, Appellants submit that Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose these claim elements.

Claim 29 also recites “encrypting said counter value and said assignment table index to obtain said temporary identifier.” For the same reasons set forth above in connection with claim 11, Appellants submit that Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose this claim element.

In view of the foregoing, Appellants respectfully submit that claim 29 is patentably distinct from Wan and Pfundstein, alone or in combination. Accordingly, Appellants respectfully request that the rejection of claim 29 be withdrawn.

Claims 31 and 34-35 depend directly from claim 29. Accordingly, Appellants respectfully request that the rejection of claims 31 and 34-35 be withdrawn for at least the same reasons as those presented above in connection with claim 29 because Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose every element of claim 29.

Claim 37 recites “obtaining an assignment table index”, “searching said assignment table for an available entry” and “encrypting said counter value to obtain said temporary identifier.” For the same reasons set forth above in connection with claim 1, Appellants submit that Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose these claim elements.

In view of the foregoing, Appellants respectfully submit that claim 37 is patentably distinct from Wan and Pfundstein, alone or in combination. Accordingly, Appellants respectfully request that the rejection of claim 37 be withdrawn.

Claims 38-39 depend directly from claim 37. Accordingly, Appellants respectfully request that the rejection of claims 38-39 be withdrawn for at least the same reasons as those presented above in connection with claim 37 because Wan and Pfundstein, alone or in combination, do not teach, suggest or disclose every element of claim 37.

B. Claims 2, 12 and 30 Rejected under 35 U.S.C. § 103(a)

Claims 2, 12 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Delory. This rejection is respectfully traversed. The standard for establishing a *prima facie* case of obviousness is provided above.

It is well settled that if an independent claim is patentable over the cited art, then all claims depending from the independent claim are similarly patentable. M.P.E.P. § 2143.03 (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.”) In this case, claim 2 depends from claim 1, claim 12 depends from claim 11 and claim 30 depends from claim 29. As noted above, claims 1, 11 and 29 are patentable and nonobvious over the combination of Wan and Pfundstein. Accordingly, as the independent claims are patentable over these references, dependent claims 2, 12 and 30 (which depend from independent claims 1, 11 and 29 respectively) are similarly allowable. Favorable consideration and withdrawal of this rejection is respectfully requested.

C. Claims 4, 14 and 32 Rejected under 35 U.S.C. § 103(a)

Claims 4, 14 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Menezes. This rejection is respectfully traversed. The standard for establishing a *prima facie* case of obviousness is provided above.

It is well settled that if an independent claim is patentable over the cited art, then all claims depending from the independent claim are similarly patentable. M.P.E.P. § 2143.03 (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.”) In this case, claim 4 depends indirectly from claim 1, claim 14 depends indirectly from claim 11 and claim 32 depends indirectly from claim 29. As noted above, claims 1, 11 and 29 are patentable and nonobvious over the combination of Wan and Pfundstein. Accordingly, as the independent claims are patentable over these references, dependent claims 4, 14 and 32 (which depend indirectly from independent claims 1, 11 and 29 respectively) are similarly allowable. Favorable consideration and withdrawal of this rejection is respectfully requested.

D. Claims 10, 20 and 36 Rejected under 35 U.S.C. § 103(a)

Claims 10, 20 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wan in view of Pfundstein in further view of Main. This rejection is respectfully traversed. The standard for establishing a *prima facie* case of obviousness is provided above.

It is well settled that if an independent claim is patentable over the cited art, then all claims depending from the independent claim are similarly patentable. M.P.E.P. § 2143.03 (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.”) In this case, claim 10 depends from claim 1, claim 20 depends from claim 11 and claim 36 depends from claim 29. As noted above, claims 1, 11 and 29 are patentable and nonobvious over the combination of Wan and Pfundstein. Accordingly, as the independent

claims are patentable over these references, dependent claims 10, 20 and 36 (which depend from independent claims 1, 11 and 29 respectively) are similarly allowable. Favorable consideration and withdrawal of this rejection is respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

Listing of Claims involved in the appeal:

1. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:
 - initializing an assignment table;
 - maintaining a counter value;
 - hashing said counter value to obtain an assignment table index;
 - searching said assignment table for an available entry;
 - encrypting said counter value to obtain said temporary identifier.
2. The method of claim 1 wherein said service area supports a predetermined number of users.
3. The method of claim 1 wherein said counter value corresponds to a counter of a first predetermined number of bits.
4. The method of claim 3 wherein said encrypting step uses an encryption cipher of a length equal to said first predetermined number of bits.
5. (Canceled)

6. The method of claim 1 further comprising a step of storing a subscriber identifier in said available entry.
7. The method of claim 1 further comprising a step of storing said counter value in said available entry.
8. The method of claim 1 wherein said temporary identifier is a temporary mobile station identifier.
9. The method of claim 6 wherein said subscriber identifier is an international mobile subscriber identifier.
10. The method of claim 1 wherein said searching step begins at said assignment table index.
11. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:
 - initializing an assignment table;
 - maintaining a counter value;
 - hashing said counter value to obtain an assignment table index;
 - searching said assignment table for an available entry;
 - encrypting said counter value and said assignment table index to obtain said temporary identifier.

12. The method of claim 11 wherein said service area supports a predetermined number of users.
13. The method of claim 11 wherein said counter value corresponds to a counter of a first predetermined number of bits.
14. The method of claim 13 wherein said encrypting step uses an encryption cipher of a length equal to said first predetermined number of bits.
15. (Canceled)
16. The method of claim 11 further comprising a step of storing a subscriber identifier in said available entry.
17. The method of claim 11 further comprising a step of storing said counter value in said available entry.
18. The method of claim 11 wherein said temporary identifier is a temporary mobile station identifier.
19. The method of claim 16 wherein said subscriber identifier is an international mobile subscriber identifier.

20. The method of claim 11 wherein said searching step begins at said assignment table index.
21. A wireless communication system comprising:
- means for mobile switching;
 - means for registering a visitor location;
 - means for storing and assigning a plurality of subscriber identifiers;
 - means for maintaining a counter value;
 - means for encrypting and generating a temporary identifier.
22. The wireless communication system of claim 21 wherein said means for storing and assigning a plurality of subscriber identifiers further comprises means for storing a plurality of counter values.
23. The wireless communication system of claim 21 wherein said means for storing and assigning a plurality of subscriber identifiers comprises an international mobile station identifier.
24. The wireless communication system of claim 21 wherein said temporary identifier is a temporary mobile station identifier.
25. The wireless communication system of claim 21 wherein said means for encrypting and generating a temporary identifier encrypts said counter value.

26. The wireless communication system of claim 21 further comprising means for performing a hash function.

27. The wireless communication system of claim 26 wherein said means for performing a hash function is configured to hash said counter value to produce an assignment table index.

28. The wireless communication system of claim 27 wherein said means for encrypting encrypts said assignment table index.

29. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:

- initializing an assignment table;
- maintaining a counter value;
- hashing said counter value to obtain an assignment table index;
- searching said assignment table for an available entry;
- encrypting said counter value and said assignment table index to obtain said temporary identifier;
- storing a subscriber identifier and said counter value in said available entry.

30. The method of claim 29 wherein said service area supports a predetermined number of users.

31. The method of claim 29 wherein said counter value corresponds to a counter of a first predetermined number of bits.

32. The method of claim 31 wherein said encrypting step uses an encryption cipher of a length equal to said first predetermined number of bits.

33. (Canceled)

34. The method of claim 29 wherein said temporary identifier is a temporary mobile station identifier.

35. The method of claim 29 wherein said subscriber identifier is an international mobile subscriber identifier.

36. The method of claim 29 wherein said searching step begins at said assignment table index.

37. A computer readable medium including a computer program, said computer program implementing a method for generating a temporary identifier in a service area of a wireless communication system, said computer program comprising:

- a first code segment for initializing an assignment table;
- a second code segment for maintaining a counter value;
- a third code segment for obtaining an assignment table index;

a fourth code segment for searching said assignment table for an available entry;
a fifth code segment for encrypting said counter value to obtain said temporary identifier.

38. The computer readable medium of claim 37 wherein said fifth code segment comprises an encryption cipher corresponding to said counter value.

39. The computer readable medium of claim 37 wherein said third code segment comprises a hash function for hashing said counter value to obtain said assignment table index.

EVIDENCE APPENDIX

NONE.

RELATED PROCEEDINGS APPENDIX

NONE.